21 ~~36~~. A method of claim ~~35~~ 22 and further comprising cooling at least the encapsulating portion of the delivery catheter distal portion after heating.

22 ~~37~~. A method of claim ~~35~~ 20 and further comprising providing a balloon on the delivery catheter distal portion and wherein placing the stent on the delivery catheter distal portion includes pressurizing the balloon.

23 ~~38~~. A method of claim ~~35~~ 20 wherein placing the stent on the delivery catheter distal portion includes compressing the stent onto the delivery catheter distal portion.

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24 ~~39~~. A method of claim ~~35~~ 20 wherein placing the stent on the delivery catheter distal portion includes placing a sheath over the stent and over the encapsulating portion of the delivery catheter distal portion.

25 ~~40~~. A method of claim ~~39~~ 24 wherein the sheath compresses the stent onto the delivery catheter distal portion.

26 ~~41~~. A method of forming a stent delivery system for implanting a stent within a vessel, the method comprising:

providing a delivery catheter having a distal portion;

providing a balloon on the delivery catheter distal portion;

placing a stent on the balloon whereby a portion of the balloon encapsulates at least a portion of the stent; and

heating the portion of balloon that encapsulates at least the portion of the stent.

27 ~~42~~. A method of claim ~~41~~ 26 and further comprising cooling the heated portion of the balloon.

28 ~~43~~. A method of claim ~~41~~ 26 wherein placing the stent includes pressurizing the balloon.

29 ~~44~~. A method of claim ~~41~~ 26 wherein placing the stent includes compressing the stent onto the balloon.

30 ~~45~~. A method of claim ~~41~~ 26 wherein placing the stent includes placing a sheath over the stent and the balloon.

31 ~~46~~. A method of claim ~~45~~ 30 wherein placing the sheath includes compressing the stent onto the balloon.

32 ~~47.~~ A method of claim ~~45~~ 20 wherein placing the stent includes pressurizing the balloon after placing the sheath over the stent and the balloon.

33 ~~48.~~ A method for making a stent delivery catheter, the method comprising:

providing a catheter having an expandable balloon portion at a distal end of the catheter;

providing an expandable stent;

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placing the expandable stent on the expandable balloon portion so that the expandable stent contacts the expandable balloon portion with at least a portion of the expandable balloon portion encapsulating at least a portion of the expandable stent;

heating the expandable balloon portion encapsulating the portion of the expandable stent; and

cooling the expandable balloon portion encapsulating the expandable stent thereby to set the shape of the expandable balloon portion.

34 ~~49.~~ A method of claim ~~48~~ 33 wherein placing the expandable stent onto the expandable balloon portion includes applying internal pressure to the expandable balloon portion.

35 ~~50.~~ A method of claim ~~49~~ 34 wherein placing the expandable stent onto the expandable balloon portion includes applying a sheath around the expandable stent on the expandable balloon portion.

36 ~~51.~~ A method of claim ~~50~~ 35 wherein placing the expandable stent onto the expandable balloon portion includes applying internal pressure to the expandable balloon portion.



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